

### REMARKS

In the Office action, paragraph 1, claims 1-31 stand rejected under 35 U.S.C. § 101 “because the claimed invention is directed to non-statutory subject matter.” Claim 1 has been substantially amended. Claims 10, 11, and 14-31 have been cancelled without prejudice. Applicant reserves the right to present the subject matter of the cancelled claims for examination in a continuation application at a later date.

Amended claim 1 is the only remaining independent method claim. Claim 1 has been recast as a method of operating a processing element to calculate a local extrema. Claim 1 is comprised of a plurality of steps including serially loading, on each clock cycle, values into first and second registers. A first series of extrema is determined from the values in the odd positions within the set of values, and the current value is saved in a third register. A series of second extrema is determined from the values in the even positions within the set of values and a current value for the second extrema is saved in a fourth register. A local extrema is then determined from the values in the third and fourth registers, and that local extrema is stored. It is seen from amended claim 1 that there are a plurality of steps for moving, processing, and saving a series of values in a plurality of registers. The registers are physically manipulated so as to store values.

The first step in a Section 101 analysis is to determine what the applicant has invented. Here, the applicant has invented and presented in method claim 1 a process. A process defines actions, i.e., a process is an invention that sets forth a series of steps or acts to be performed. In this case, the series of steps or acts are to be performed within a processing element and, more particularly, define the flow of values and the operation of hardware within the processing element. It is respectfully submitted that the subject matter of claim 1 falls within the definition of a process as set forth in 35 U.S.C. § 101. Therefore, that should be the end of the Section 101 analysis. It is not necessary to determine if the subject matter of claim 1 falls within one of the judicial exceptions or admits of a practical application inasmuch as the subject matter, on its face, is a process and therefore statutory.

As further evidence that the claims currently presented are directed to a process and are therefore statutory, the examiner’s attention is respectfully directed to the following patents.

U.S. patent no. 5,710,732 is entitled Calculating the Average of Four Integer Numbers Rounded Away From Zero in a Single Instruction Cycle. Claim 1 reads:

1. A method of operating a circuit to obtain an average of four unsigned operands, such that the average is an integer rounded away from zero, comprising:  
  
appending two zero's to a left end of each of the operands to provide extended operands;  
  
summing the extended operands to provide an intermediate result;

removing a lowest significant bit and a second lowest significant bit from the intermediate result to provide a shortened intermediate result;

incrementing the shortened intermediate result to provide the average when the removed second lowest significant bit is a one; and

providing the shortened intermediate result as the average when the removed second lowest significant bit is a zero.

U.S. patent no. 5,751,617 is entitled Calculating the Average of Two Integer Numbers Rounded Away From Zero in a Single Instruction Cycle. Claim 1 reads:

1. A method of operating a circuit to obtain an average of two unsigned operands such that the average is an integer rounded away from zero in a single instruction cycle, comprising:

logically right-shifting each of the operands by one bit position, wherein bits in a lowest significant bit position of the operands become shifted-out bits;

summing the right-shifted operands to obtain a result; and

incrementing the result when any of the shifted-out bits is a one.

U.S. patent no. 5,835,389 is entitled Calculating the Absolute Difference of Two Integer Numbers in a Single Instruction Cycle. Claim 1 reads:

1. A method of operating a circuit to obtain an absolute difference of first and second unsigned integer operands, such that the absolute difference is an unsigned integer, comprising:

bit-complementing the second operand;

summing the first and bit-complemented second operands to obtain an intermediate result;

incrementing the intermediate result to obtain an incremented intermediate result;

bit-complementing the intermediate result to obtain a bit-complemented intermediate result;

determining whether the intermediate result overflows provided the first and bit-complemented second operands and the intermediate result are considered unsigned numbers;

selecting the incremented intermediate result to obtain the unsigned absolute difference when the overflow occurs; and

selecting the bit-complemented intermediate result to obtain the unsigned absolute difference when the overflow does not occur.

U.S. patent no. 5,917,739 is entitled Calculating the Average of Four Integer Numbers Rounded Towards Zero in a Single Instruction Cycle. Claim 1 reads:

1. A method of operating a circuit to obtain an average of four signed operands, such that the average is an integer rounded towards zero in a single instruction cycle, comprising:

appending two bits to a left end of each of the operands to provide extended operands, wherein for each operand the two appended bits are zero's when the operand is a positive number, and one's when the operand is a negative number,

summing the extended operands to provide an intermediate result;

removing a lowest significant bit and a second lowest significant bit from the intermediate result to provide a shortened intermediate result;

incrementing the shortened intermediate result to provide the average when the intermediate result has a negative value and either of the removed bits is a one; and

providing the shortened intermediate result as the average (i) when the intermediate result has a positive value, and (ii) when the intermediate result has a negative value and both of the removed bits are zero's.

U.S. patent no. 6,007,232 is entitled Calculating the Average of Two Integer Numbers Rounded Towards Zero in a Single Instruction Cycle. Claim 1 reads:

1. A method of operating a circuit to obtain an average of two unsigned operands such that the average is an integer rounded towards zero in a single instruction cycle, comprising:

logically right-shifting each of the operands by one bit position, wherein bits in a lowest significant bit position of the operands become shifted-out bits;

summing the right-shifted operands to obtain a result; and

incrementing the result when both of the shifted-out bits are one's.

New claim 32 is an apparatus claim directed to a processing element and therefore also falls within the statutory definition of patentable subject matter. See, for example, U.S. patent no. 7,031,996 entitled Calculating Square Root of Binary Numbers with Fixed-Point Microprocessor. Claim 1 provides:

1. A square root calculator comprising:

a binary searching module operable to accept a number, perform a binary search operation, and return an integer portion of the square root of the number;

a fraction calculating module operable to calculate a fractional portion of the square root;  
and a summing module operable to sum the integer portion and the fractional portion to  
obtain the square root.

In view of the foregoing, it is believed that the 35 U.S.C. § 101 rejection in the last Office action  
has been overcome and should now be withdrawn.

In the last Office action, paragraph 2, claims 1-31 were provisionally rejected under the judicially  
created doctrine of obviousness-type double patenting as being unpatentable over (1) claims 14-21 of  
copending Application No. 10/689,256 and (2) claims 14-20 of copending Application No. 10/689,449.  
Because this is a provisional obviousness-type double patenting rejection, the double patenting rejection  
will be addressed at such time as allowable subject matter is indicated in the instant application.

**Request for Interview**

Applicant has made a diligent effort to place the instant application in condition for allowance. If  
the examiner is of the opinion that the instant application is in condition for disposition other than through  
allowance, the examiner is respectfully requested to contact applicant's attorney at the telephone number  
listed below **so that an interview may be scheduled before the issuance of a first Office action  
rejection.**

Respectfully submitted,



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